VX-820E SERIES

VHF/UHF Portable Radios

- Power Output: 5 W
- Wide Band
  VHF: 134 - 174 MHz
  UHF: 400 - 470 MHz
- VX-829E/824E with LCD:
  Maximum 512 Channels / 32 Groups
- VX-821E w/o LCD:
  Maximum 16 Channels / 1 group
- Large LCD (Dot Matrix / 12 Characters + 7 Segments / 3 Characters) VX-829E / 824E
- Wide / Narrow (12.5 / 20 / 25 kHz), programmable per channel
- CTCSS / DCS Encode / Decode
- DTMF ANI / DTMF Paging (Requires FVP-25 for DTMF paging)
- Built-in 5-Tone signaling
- 2-Tone Encode and Multiple-2 Tone Decode
- User Selectable Tone
- Submersible External Microphone MH-66 Series (optional)
- Scan: Channel Scan, Priority Scan, Dual Watch, Follow-me Scan, Follow-me/DW and TA Scan
- Compander (Wide and Narrow Band)
- Loud 700 mW Audio Output
- AF Minimum Volume
- 7-Color LED: Flash pattern and color can be set as 2-Tone or 5-Tone Incoming Call Alert or for Emergency Mode use
- Lone Worker
- RX / TX Battery Save
- Programmable Home Channel function
- Direct Channel Recall (#1-#4)
- Programmable Function Keys
- BCLO / BTLO and TOT
- Remote Radio Stun / Kill / Revive (5-Tone)
- Speed Dial (16-key version only)
- ARTS™ (Auto-Range Transpond System)
- Encryption (Optional FVP-25/36 or FVP-35 required)
- Voice Storage (Optional DVS-5 required)
- ANI Encoder (MDC-1200®, GE-Star® and DTMF: Optional VME-100 required)
- ANI Encoder/Decoder (MDC-1200®, GE-Star® and DTMF (Encode): Optional VMDE-200 required)
- PC Programmable
- MIL-STD 810C/D/E/F

VX-829E
512 ch/32 groups with 16 Keys and LCD

VX-824E
512 ch/32 groups with 4 Keys and LCD

VX-821E
16 ch/1 group without LCD

IP55 Water-Jets
IP57 Submersible for 30 min
CE

Vertex Standard
We make a difference

VX-820E

IP55 Water Jets

IP57 Submersible 1 m for 30 min

SERIES

Today's demanding public safety communications environment demands reliability, ruggedness, and versatility like never before. The VX-820E series of Vertex Standard portables answers the call with a wide array of signaling capability, along with big audio, operator and system security measures, and PC programmability for quick deployment. And these portables are submersible to IP57 specifications, your assurance of long-term reliability under the most difficult operating circumstances.

VERSATILITY

VX-829E / 824E with LCD: Maximum 512 Channels / 32 Groups
VX-821E w/o LCD:Maximum 16 Channels / 1 Group

The LCD-equipped version provides massive channel storage capability: up to 512 channels may be programmed into as many as 32 groups. A single radio may therefore be programmed with channel sets for a number of different jurisdictions or organizations, ensuring seamless interoperability. The VX-820E Series without the LCD can accommodate up to 16 channels in a single memory group.

CTCSS / DCS Encode / Decode

High-performance Encoder/Decoder circuits for both CTCSS and Digital Code Squelch are provided, for access to tone/code controlled systems. DCS is ideal for crowded RF environments, providing superior immunity from false opening of the squelch.

DTMF ANI/DTMF Paging (optional FVP-25 required for DTMF Paging)

Fleet and network operation are enhanced by the built-in DTMF ANI circuit.

2-Tone Encode and Multiple 2-Tone Decode

The VX-820E Series can transmit a 2-Tone paging call, and can receive 2-Tone calls using different tone combinations.

User Selectable Tone

One of the front panel's "programmable" keys may be designated so as to allow the user to select a CTCSS or DCS tone from a pre-defined Tone Table.

Scan: Channel Scan, Priority Scan, Dual Watch, Follow-me Scan, Follow-me Dual Watch, and TA Scan

The VX-820E Series provides unmatched flexibility in its scanning features. Designed to optimize operation in a wide variety of system environments, these scanning capabilities ensure that you never miss an important call!

Compander (Wide and Narrow Band)

For operation in systems requiring Companding, the VX-820E Series portables include both Wide- and Narrow-band Companding circuitry, programmable channel by channel.

ACTUAL SIZE

VX-829E VX-824E VX-821E

Lone Worker
The Lone Worker feature is designed to emit an alarm for 30 seconds when the Lone Worker Timer (programmed by the dealer) has expired. If the user does not reset the timer by pressing the PTT switch, the radio switches to the Emergency mode.

RX/TX Battery Saver
When engaged, the Receive-mode Battery Saver rapidly pulses the portable on and off, reducing current consumption and extending battery life. If a call is received, the Battery Saver is disengaged, and normal operation resumes. On transmit, the Battery Saver will reduce transmitter power, thus extending operating time, when you are within close range of a strong repeater or dispatch center.

Programmable Function Keys
Customization of feature access is easily accomplished at the time of programming, thanks to the "programmable" keys that may be assigned functions needed most in your operating environment.

PC Programmable
All channel and other configuration data may be uploaded to the portable by the dealer in a matter of minutes, allowing efficient setup of a fleet of radios when rapid deployment is required.

ANI Encoding and Decoding (MDC-1200®, GE-Star®, and DTMF (Encode): optional VME-100 or VMDE-200 required)
Automatic Number Identification, triggered by the pressing of the PTT key, is available in the most popular industry-standard formats, via the optional VME-100 (for Encoding only) or VMDE-200 (for Encoding and Decoding) module.

HIGH PERFORMANCE

Power Output: 5 W
The VX-820E Series provides up to five solid Watts of transmitter power, for extended communications range. For more localized applications, the power output may be reduced to 2.5 Watts, 1 Watt, or 1/4 Watt, for enhanced battery life.

Wide / Narrow (12.5 / 20 / 25 kHz programmable per channel)
When programming radios for use in different jurisdictions, the VX-820E Series portables may be set up, channel by channel, for use in 12.5 kHz, 20 kHz, or 25 kHz channel spacing environments. Deviation and bandwidth are automatically set according to the configuration you choose.

Built-in 5-Tone signaling
For advanced network or fleet operations, a 5-Tone Encoder-Decoder circuit is included in the VX-820E Series. An expensive option on many competing brands, this included feature enhances operation without impacting your budget.

Loud 700 mW Audio Output
Ideal for reception in noisy environments, high-powered audio of the VX-820E Series is coupled to a large internal speaker, assuring solid copy throughout difficult crowd control, fire, or sporting-event operations.

Speed Dial (16-key version only)
An easy-to-use DTMF Speed Dialer feature is included in the VX-829E, for specialized selective calling, telephone interconnect, or other applications.

Voice Storage (Optional DVS-5 required)
The optional DVS-5 Digital Voice Storage Unit allows you to store and play back up to 120 seconds of incoming received audio, so you can archive an important incoming message.

EASY USER INTERFACE

7-Color LED for Incoming Call Alert
The front panel of the VX-820E Series includes an ultra-bright LED that can display up to seven different colors, with a variable flash pattern, to alert the operator when a 2-Tone or 5-Tone call has come in, and during Emergency mode operation.

Large LCD
(Dot Matrix / 12 Characters +7 Segments / 3 Characters) (VX-829E/824E)
The large, easy-to-read display includes a 12-character dot matrix that provides a wealth of information about the operating channel, as well as various status icons. Illuminated using Vertex Standard's renowned Omni-Glow™ back-lighting, the VX-829E/824E's LCD is clearly visible at night, with minimal degradation of your

Programmable Home Channel Function
The user may select, out of the dealer-programmed channel list, one channel to be the "Home" channel, which may be assigned to a "programmable" key for one-touch access to a critically-important channel.

Direct Channel Recall (#1 - #4)
Any or all of the programmable keys may be assigned as direct-access one-touch keys for selecting important operating channels.

ARTS™ (Auto-Range Transpond System)
The ARTS™ feature is a "handshake" system that uses DCS coding to confirm that two ARTS™-equipped units are within communication range. If an "out of range" condition develops, an alarm will sound and the communications center can instruct the field unit to move to a better location (or assistance to the field unit can be dispatched).

SECURITY

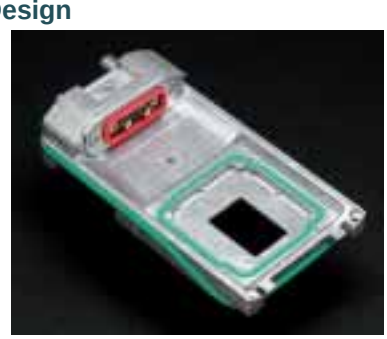
BCLO / BTLO and TOT
To prevent interference to other users on busy channels, the Busy Channel Lock-Out (BCLO) and Busy Tone Lock-Out (BTLO) features prevent transmission by the portable if the channel is occupied. And the Time-Out Timer (TOT) feature will automatically cut of transmission if the programmed maximum transmit time is exceeded.

Remote Radio Stun / Kill / Revive (5-Tone)
To prevent use of the portable by an unauthorized operator (in case of theft, non-payment of subscription, etc.), a dispatch center can send a 5-Tone command to "Stun" (temporary disabling) or "Kill" (permanent disabling) a unit. If the "Stun" command has been sent, another 5-Tone "Revive" command may also be sent, re-enabling operation of the portable.

Encryption (Optional FVP-35/36 or FVP-25 required)
The FVP-35 and FVP-36 Encryption Units provide security for your important public safety and security communications. A DTMF Paging function is also included in the FVP-25 module, for selective calling.

DURABLE CONSTRUCTION

Rugged, Submersible Design
The VX-820E Series portables are housed in an ultra-rugged, impact-resistant case that is designed to exceed U.S. MIL-STD 810C/D/E/F standards for shock, vibration, and driving rain; it also meets international waterproofing standard IP55 (water jets) and IP57 (submersion in water to a depth of 1 meter for up to 30 minutes).



Submersible External Speaker/Microphone MH-66 Series (optional)
When operating in an emergency situation where immersion of the radio and/or its accessories could occur, the optional MH-66 Series Speaker/Microphone is rated to the same submersibility specifications as the portable itself (IP57), ensuring that your essential communications won't be interrupted if the microphone gets dropped into the water.

Other Features
•AF Minimum Volume •Radio-to-Radio Cloning •Signal Strength Meter •Battery Indicator •Audio Pitch Control

VX-820E SERIES VHF/UHF Portable Radios

Specifications

	VHF	UHF
General Specifications		
Frequency Range	134-174 MHz	400-470 MHz
Number of Channels	512 (VX-829E / 824E) / 16 (VX-821E)	
Number of Groups	32 (VX-829E / 824E) / 1 (VX-821E)	
Channel Spacing	12.5 / 20 / 25 kHz	
PLL Steps	5 / 6.25 kHz	
Power Supply Voltage	7.4 VDC ±20 %	
Current Consumption		
STBY (w/save)	75 (30) mA	75 (30) mA
RX	200 mA	200 mA
TX	1.7A	1.9A
Battery Life (w/Battery save) (RX 5 : TX 5 : STBY 90 Duty)	12.5 h (16 h) w/ FNB-V87LI	11.5 h (15 h) w/ FNB-V87LI
Ambient Temperature Range	−30° C to +60° C	
Frequency Stability	±2.5 ppm	
Dimensions (W x H x D)	57.5 x 96.5 x 37.5 mm	
Weight (approx)	310 g w/Ant, Battery (FNB-V86LI) and Belt clip	

	VHF	UHF
Receiver Specifications		
Sensitivity (12 dB SINAD)	0.25 / 0.32 µV	
(EN 20 dB SINAD)	−4 / −2 dBµV emf	
Adjacent Channel Selectivity	75 / 65 dB	
Intermodulation	65 dB	
Spurious and Image Rejection	70 dB	
Hum and Noise	48 / 42 dB	
Audio Output	700 mW @16 Ohms, 5 % THD	

Transmitter Specifications	
Power Output	5 / 2.5 / 1 / 0.25 W
Modulation Limitting	±5 kHz @ 25 kHz ±4 kHz @ 20 kHz ±2.5 kHz @ 12.5 kHz
Spurious Emissions	−36 dBm ≤ 1 GHz −30 dBm > 1 GHz
FM Hum & Noise	45 / 40 dB
Audio Distortion (@1 kHz)	Less than 3 %

Measurements per: EN 300 086 standards unless noted above.
Specifications subject to change without notice or obligation.

Applicable MIL-STD

Standard	MIL 810C Methods/Procedures	MIL 810D Methods/Procedures	MIL 810E Methods/Procedures	MIL 810F Methods/Procedures
Low Pressure	500.1/Procedure I	500.2/Procedure I, II	500.3/Procedure I, II	500.4/Procedure I, II
High Temperature	501.1/Procedure I, II	501.2/Procedure I, II	501.3/Procedure I, II	501.4/Procedure I, II
Low Temperature	502.1/Procedure I	502.2/Procedure I	502.3/Procedure I, II	502.4-3/Procedure I, II
Temperature Shock	503.1/Procedure I	503.2/Procedure I	503.2/Procedure I	503.4/Procedure I, II
Solar Radiation	505.1/Procedure I	505.2/Procedure I	505.3/Procedure I, II	505.4/Procedure I, II
Rain	506.1/Procedure I, II	506.2/Procedure I, II	506.3/Procedure I, II	506.4/Procedure I, III
Humidity	507.1/Procedure I, II	507.2/Procedure II, III	507.3/Procedure II, III	507.4/Procedure I
Salt Fog	509.1/Procedure I	509.2/Procedure I	509.2-3/Procedure I	509.4/Procedure I
Dust	510.1/Procedure I	510.2/Procedure I	510.3/Procedure I	510.4/Procedure I, III
Vibration	514.2/Procedure VIII, X	514.3/Procedure I Cat. 24	514.4/Procedure I Cat. 24	514.5/Procedure I Cat. 24
Shock	516.2/Procedure I, II, V	516.3/Procedure I, IV	516.4/Procedure I, IV	516.5/Procedure I, IV

Applicable International Protection Standard

IP55 Water Jets

IP57 Submersible 1 m for 30 min

ISO9001:2000 — PERRY JOHNSON REGISTRARS, INC. — ANAB ACCREDITED

YAESU MUSEN CO., LTD
ISO9001:2000 certification

ISO14001:1996 — PERRY JOHNSON REGISTRARS, INC. — MGMT. SYS. RvA C419

YAESU MUSEN CO., LTD
ISO14001:1996 certification

Accessories & Options

MH-50D7A
Speaker/Microphone

VH-121
3-Wire Earpiece, Mic, Palm PTT Switch

FVP-35
Encryption Unit (Rolling Code Voice Scrambler)

VME-100
ANI Encoder Unit

VAC-920B/C/U*
Desktop Rapid Charger

FNB-V86LI
7.4 V 1150 mAh Li-Ion Light-Duty Battery

MH-66A7A **MH-66B7A**
w/PF key, Toggle
Submersible External Microphone

VH-131
2-Wire Earpiece, Palm Mic/PTT Combo

FVP-36
Inversion Encryption Unit

VMDE-200
ANI Encoder/Decoder Unit

VAC-6920B/C/U*
6-Unit Multi Charger

FNB-V87LI
7.4 V 2000 mAh Li-Ion Battery

VH-111
Over the Head, Heavy Duty Headset

FVP-25
Encryption/DTMF Pager Unit

DVS-5
Voice Storage Unit

VT60F/FS
VX-Trunk Unit (FS: w/Encryption)

FBA-34
Alkaline Battery Case (6XAA)

FNB-V92LI/IS
7.4 V 3000 mAh Li-Ion Battery

MH-65B7A Submersible External Microphone
MDC1200 Digital ANI Encode Unit
FIF-10/A USB Programming Interface

CT-108 PC Programming Cable (for FIF-10/A)
CT-109 PC Programming Kit (CT-29 + CT-115)
CT-115 PC Programming Cable (for VPL-1)

CT-116 Radio to Radio Cloning Cable
LCC-820 Leather Case
CE59 Programming Software

* B for 120 VAC / C for 230 VAC / U for 240 VAC with UK plug

Various accessories listed may not be available in some countries.

Vertex Standard

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2006.0205NA(EU) B9200511 Printed in Japan